Somatostatin receptor 2A protein expression characterizes anaplastic oligodendrogliomas with favorable outcome

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Résumé en anglais	Diffuse gliomas are classified according to the 2016 WHO Classification of Tumors of the Central Nervous System, which now defines entities by both histology and molecular features. Somatostatin receptor subtype 2A (SSTR2A) expression has been reported in various solid tumors as associated with favorable outcomes. Its expression has been reported in gliomas with uncertain results regarding its prognostic value. The objective of this study was to assess the prognostic impact of SSTR2A protein expression in a large cohort of grade III and IV gliomas classified according to the updated 2016 WHO classification. We further validated our result with an independent cohort of low grade glioma using dataset generated by The Cancer Genome Atlas (TCGA) Research Network.We analyzed clinical and molecular data from 575 patients. SSTR2A protein expression was evaluated using immunohistochemistry on tissue microarrays. High expression of SSTR2A protein associated with the anaplastic oligodendroglioma IDH-mutant and 1p/19q-codeleted subgroup ($p < 0.001$). Among these tumors, SSTR2A protein expression was significantly associated with a lower proliferative index, the absence of microvascular proliferation and the absence of necrosis ($p < 0.001$). Furthermore SSTR2A protein expression associated with better overall survival ($p = 0.007$) and progression-free survival ($p = 0.01$) in both univariate and multivariate analysis when adjusted by the age, the presence of necrosis and the mitotic index. Similar results were obtained regarding SSTR2 mRNA expression in the TCGA low grade glioma, subtype IDH-mutant and 1p/19q-codeleted, dataset.SSTR2A might represent an attractive biomarker and therapeutic target in anaplastic oligodendroglioma IDH-mutant and 1p/19q-codeleted specific subgroup. Understanding the implicated molecular pathways may represent a step forward to improve therapeutic approaches.
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